# SECTION 04 05 13 MASONRY MORTARING

# PART 1 - GENERAL

# 1.1 DESCRIPTION:

Section specifies mortar materials and mixes.

#### 1.2 RELATED WORK:

- A. Mortar used in Section:
  - 1. Section 04 05 16, MASONRY GROUTING.
  - 2. Section 04 20 00, UNIT MASONRY.
  - 3. Section 04 72 00, CAST STONE MASONRY.
- B. Mortar Color: Section 09 06 00, SCHEDULE FOR FINISHES.

#### 1.3 TESTING LABORATORY-CONTRACTOR RETAINED

- A. Engage a commercial testing laboratory approved by COTR to perform tests specified below.
- B. Submit information regarding testing laboratory's facilities and qualifications of technical personnel to COTR.

#### 1.4 TESTS

- A. Test mortar and materials specified.
- B. Certified test reports.
- C. Identify materials by type, brand name and manufacturer or by origin.
- ${\tt D.}$  Do not use materials until laboratory test reports are approved by  ${\tt COTR.}$
- E. After tests have been made and materials approved, do not change without additional test and approval of COTR.

# F. Testing:

1. Test materials proposed for use for compliance with specifications in accordance with test methods contained in referenced specifications and as follows:

## 2. Mortar:

- a. Test for compressive strength and water retention; ASTM C270.
- b. Mortar compressive strengths 28 days as follows:

# Type N: Minimum 5170 kPa (750 psi) at 28 days.

# 3. Cement:

- a. Test for water soluble alkali (nonstaining) when nonstaining cement is specified.
- b. Nonstaining cement shall contain not more than 0.03 percent water soluble alkali.
- 4. Sand: Test for deleterious substances, organic impurities, soundness and grading.

G. During progress of work, testing laboratory specified in Section 01 45 29, TESTING LABORATORY SERVICES, takes and tests samples as specified in that section. Testing procedures and test methods in ASTM C780.

#### 1.5 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Certificates:
  - 1. Testing laboratory's facilities and qualifications of its technical personnel.
  - 2. Indicating that following items meet specifications:
    - a. Portland cement.
    - b. Masonry cement.
    - c. Mortar cement.
    - d. Hydrated lime.
    - e. Fine aggregate (sand).
    - q. Color admixture.
- C. Laboratory Test Reports:
  - 1. Mortar, each type.
  - 2. Admixtures.
- D. Manufacturer's Literature and Data:
  - 1. Cement, each kind.
  - 2. Hydrated lime.
  - 3. Admixtures.
  - 4. Liquid acrylic resin.

# 1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver masonry materials in original sealed containers marked with name of manufacturer and identification of contents.
- B. Store masonry materials under waterproof covers on planking clear of ground, and protect damage from handling, dirt, stain, water and wind.

#### 1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of specification to extent referenced. Publications are referenced in text by basic designation only.
- B. American Society for Testing and Materials (ASTM):

C40-04.....Organic Impurities in Fine Aggregates for Concrete

C91-05......Masonry Cement

C109-07......Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-MM Cube Specimens)

C144-04.....Aggregate for Masonry Mortar

C150-05.....Portland Cement

Project: 0830400 04 05 13 - 2
Surgery Renovation and Expansion
Veterans Affairs Medical Center

C207-06 Hydrated Lime for Masonry Purposes
C270-07Mortar for Unit Masonry
C307-03Tensile Strength of Chemical - Resistant Mortar
Grouts, and Monolithic Surfacing
C321-00/R05Bond Strength of Chemical-Resistant Mortars
C348-02Flexural Strength of Hydraulic Cement Mortars
C595-08Blended Hydraulic Cement
C780-07Preconstruction and Construction Evaluation of
Mortars for Plain and Reinforced Unit Masonry
C979-05Pigments for Integrally Colored Concrete
C1329-05Mortar Cement

#### PART 2 - PRODUCTS

#### 2.1 HYDRATED LIME

ASTM C207, Type S.

#### 2.2 AGGREGATE FOR MASONRY MORTAR

- A. ASTM C144 and as follows:
  - 1. Light colored sand for mortar for laying face brick.
- B. Test sand for color value in accordance with ASTM C40. Sand producing color darker than specified standard is unacceptable.

#### 2.3 MASONRY CEMENT

A. ASTM C91. Type N.

# 2.4 MORTAR CEMEMT

ASTM C1329, Type N.

## 2.5 PORTLAND CEMENT

A. ASTM C150, Type I.

#### 2.6 LIQUID ACRYLIC RESIN

A formulation of acrylic polymers and modifiers in liquid form designed for use as an additive for mortar to improve physical properties.

# 2.7 WATER

Potable, free of substances that are detrimental to mortar, masonry, and metal.

# 2.8 POINTING MORTAR

A. For Cast Stone or Precast Concrete: Proportion by volume; One part white Portland cement, two parts white sand, and 1/5 part hydrated lime.

#### 2.9 MASONRY MORTAR

- A. Conform to ASTM C270.
- B. Admixtures:
  - 1. Do not use mortar admixtures, except for high bond mortar, unless approved by COTR.

- 2. Submit laboratory test report showing effect of proposed admixture on strength, water retention, and water repellency of mortar.
- 3. Do not use antifreeze compounds.
- C. Colored Mortar:
  - 1. Maintain uniform mortar color for exposed work throughout.
- 2. Color of mortar for exposed work in alteration work to match color of existing mortar unless specified otherwise in section 09 06 00, SCHEDULE FOR FINISHES.

# PART 3 - EXECUTION

# 3.1 MIXING

- A. Mix in a mechanically operated mortar mixer.
  - 1. Mix mortar for at least three minutes but not more than five minutes.
- B. Measure ingredients by volume. Measure by the use of a container of known capacity.
- C. Mix water with dry ingredients in sufficient amount to provide a workable mixture which will adhere to vertical surfaces of masonry units.

#### 3.2 MORTAR USE LOCATION

A. For brick veneer over frame back up walls, use Type N portland cementlime mortar or Type S masonry cement or mortar cement mortar.

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